REMARKS

In response to the Office Action dated December 5, 2001, the specification and claims 1, 8 and 15 are amended. Claims 16 and 17 are added.

Claims 1-5, 7-12, 14 and 15 were rejected under 35 USC 102(e) as anticipated by Kuwata (U.S. Patent No. 6,151,410). The rejection is respectfully traversed.

Kuwata discloses an automated image-processing apparatus and method to correct the balance of color in an image. A sample-count distribution of image data is found for each color component by applying a thinning technique on samples. Then, a judgment is made to determine whether analogy exists among the sample-count distributions of the color components. A low degree of analogy suggests that characteristics recognized from the sample-count distributions shall naturally be made uniform among the color components. Correction is made by correcting an offset, with an emphasis on the contrast and brightness to produce a well pitched and good image from the image data with poor color reproducibility.

Specifically, in Kuwata, a distribution of gradation-color-specification data is found for each color component, and characteristics of color components are identified from the separated distributions of the gradation-color-specification data. Judgment as to whether pieces of gradation-color-specification data of color components resemble each other are formed by finding maximum and minimum values of the data, and evaluating differences in maximum and minimum among the pieces of gradation-color-specification data. An attempt is then made to make the identified characteristics uniform. That is, a well pitched image having no color slippages can be obtained without regard to the substance of the image (see, for example, col. 3, lines 5-28). Hence, only picture elements approximated by the gradation-color-specification data

are picked up to be used in formation of judgment on characteristics (see, for example, col. 4, lines 7-30).

The present invention discloses a system and method of correcting the image quality of color images captured, for example, using a digital camera or scanner. Image processing occurs as follows. When image correction is requested, image data is subjected to a judgment of the necessity/non-necessity of correction items in accordance with the following judgment processing. For items determined as requiring correction, the color image is judged, in the following order, to determine whether the image is a sunset scene, color-covered, normal in contrast and normal in sharpness. Using this process, predetermined image correction is carried out with respect to one or more of the items regarding the image quality of color images, rather than performing correction compared to a predetermined value. That is, the judgment is made based on each item on the basis of the whole condition of each image.

Specifically, judgment is first made as to whether image correction is required. The judgment is based on at least sunset judgment, color covering judgment, contrast judgment and sharpness judgment. An image correction unit performs the image correction for items corresponding to a color image judged as "correction necessary" on the basis of the judgment results. For example, if an image, which is not a sunset scene, is judged to include too much red, the red component on the whole of the color image is weakened to correct the color covering. That is, judgment as to whether the color image is a sunset scene ("sunset judgment") is performed on the basis of the histogram distribution of image data of part of color components in the range of red to yellow. Then, judgment as to whether the color image is color-covered is performed on the basis of the histogram distribution of image data of the whole of color components in the range of red to blue. This is followed by judgment of contrast and sharpness

which uses the results of the histogram image data created during sunset and color-covering judgment.

The Examiner cites col. 9, lines 13-19 of Kuwata as disclosing "items include[ing] a color covering judgement used to judge whether the whole of the color image is covered with a specific color or not." Applicants submit, however, that the process of color-covering judgment disclosed in Kuwata is patentably distinct from that which is claimed in the present invention. Specifically, in Kuwata, gradation-color-specification data is divided into a plurality of zones, and judgment is made on a degree of analogy among color components by comparing portions of a sample-count distribution in the zones with those other distributions in the corresponding zones. The claimed invention, on the other hand, requires that the quality of the whole area of the image data, not a portion, be analyzed during judgment. For example, claim 1 (as amended) recites "judging whether correction of image data of a color image is necessary based on the quality of at least one of sunset scene, the color image covered with a specific color, contrast and sharpness of the whole area of the image data." As noted by the Examiner in paragraph 4 of the Office Action, Kuwata also fails to disclose "the sharpness feature of the color image."

Since the recited structure is not disclosed by the applied prior art, claims 1, 8 and 15 are patentable. Claims 7 and 9, depending from claim 1, and claims 9 and 14, depending from claim 8, are similarly patentable.

Claims 6 and 13 have been rejected under 35 USC 103(a) as unpatentable over Kuwata in view of Suzuki (U.S. Patent 5,642,410). The rejection is moot in view of the cancellation of claims 6 and 13.

In view of the foregoing, claims 1-2, 7-9 and 14-15 are in condition for allowance. An indication of the same is solicited.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made**".

In the event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 325772009600.

Respectfully submitted,

Dated: June 3, 2002

By: _____
Kevin R. Spivak
Registration No. 43,148

Morrison & Foerster LLP
2000 Pennsylvania Avenue, N.W.
Washington, D.C. 20006-1888
Telephone: (202) 887-6924
Facsimile: (202) 263-8396

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

The paragraph beginning on page 3, line 9 has been amended as follows:

Next, the count value n is incremented by one (#107), and whether the count value n is larger than the designated number N of files is judged (#108). If the count value n is not larger than the number N (NO at #108), the procedure returns to [step] #104, and the same predetermined image processing is carried out for the next image file (#104 to #108). If the count value n is larger than the designated total number N of files (YES at #108), it is judged that the image correction processing has been completed for [all] the files, and the processing ends.

The paragraph beginning on page 4, line 15 has been amended as follows:

The present invention relates to an image processing method for carrying out predetermined correction processing with respect to one or more items regarding the quality of color images. The image processing method [a judgment step for] judging the [necessity/nonnecessity] necessity of correction with respect to each of the above-mentioned items and a correction processing [step] for carrying out the predetermined correction processing with respect to the item judged as required to be corrected [at the above-mentioned judgment step] during judgment.

The three consecutive paragraphs beginning on page 6, line 2 have been amended as follows:

Furthermore, the present invention relates to a readable recording medium with a recorded program for carrying out the predetermined correction processing with respect to one or more items regarding the image quality of color images. The processing program comprising [a judgment step for] judging the [necessity/nonnecessity] necessity of correction with respect to each item described above and [a] correction processing [step] for carrying out the predetermined correction processing with respect to the item judged as required to be corrected at the above-mentioned judgment [step] is stored in the readable recording medium.

Moreover, the present invention relates to an image processing apparatus for carrying out the predetermined correction processing with respect to one or more items regarding the image quality of color images. The image processing apparatus comprises a judgment [means for judging] device to judge the [necessity/nonnecessity] necessity of correction with respect to each item described above and a correction [means for carrying] device to carry out the predetermined correction processing with respect to the item judged as required to be corrected [at the above-mentioned judgment step] during judgment.

Additionally, the image processing apparatus of the present invention comprises an image designation [means for designating] device to designate plural color images to be corrected, and a correction processing control [means for judging] device to judge the [necessity/nonnecessity] necessity of correction for [all] the color images designated by the image designation [means] device and for carrying out the predetermined correction processing on the basis of the result of the judgment.

In the Claims:

Please cancel claims 3-6 and 10-13.

Claims 1, 8 and 15 have been amended as follows:

1. (Amended) An image processing method, comprising [the steps of]:

judging [the necessity/nonnecessity of] whether correction of image data of a color image is necessary [with respect to one or more items regarding] based on the quality of at least one of sunset scene, the color image covered with a specific color, contrast and sharpness of the whole area of the image data; and

[carrying out the] performing a predetermined correction processing on the color image based on the judgment of the quality of the image data [with respect to the item judged as required to be corrected at the judging step].

8. (Amended) An image processing apparatus, comprising:

a memory which stores an image data of a color image;

a judge section which judges [the necessity/nonnecessity of] whether correction of the color image [data with respect to one or more items regarding] based on the quality of at least one of sunset scene, the color image being covered with a specific color, contrast and sharpness of the whole area of the image data; and

a correct section which [corrects the image data with respect to the item judged as required to be corrected at the judge section] performs a predetermined correction processing on the color image based on a judgment of the quality of the image data by the judge section.

15. (Amended) A recording medium with a recorded program, [wherein] the program [has the steps of] performing:

judging [the necessity/nonnecessity of] whether correction of image data of a color image is necessary [with respect to one or more items regarding] based on the quality of at least one of sunset scene, the color image being covered with a specific color, contrast and sharpness of the whole area of the image data; and

[carrying out the] performing a predetermined correction processing on the color image based on the judgment of the quality of the image data [with respect to the item judged as required to be corrected at the judging step].